FIG. 1

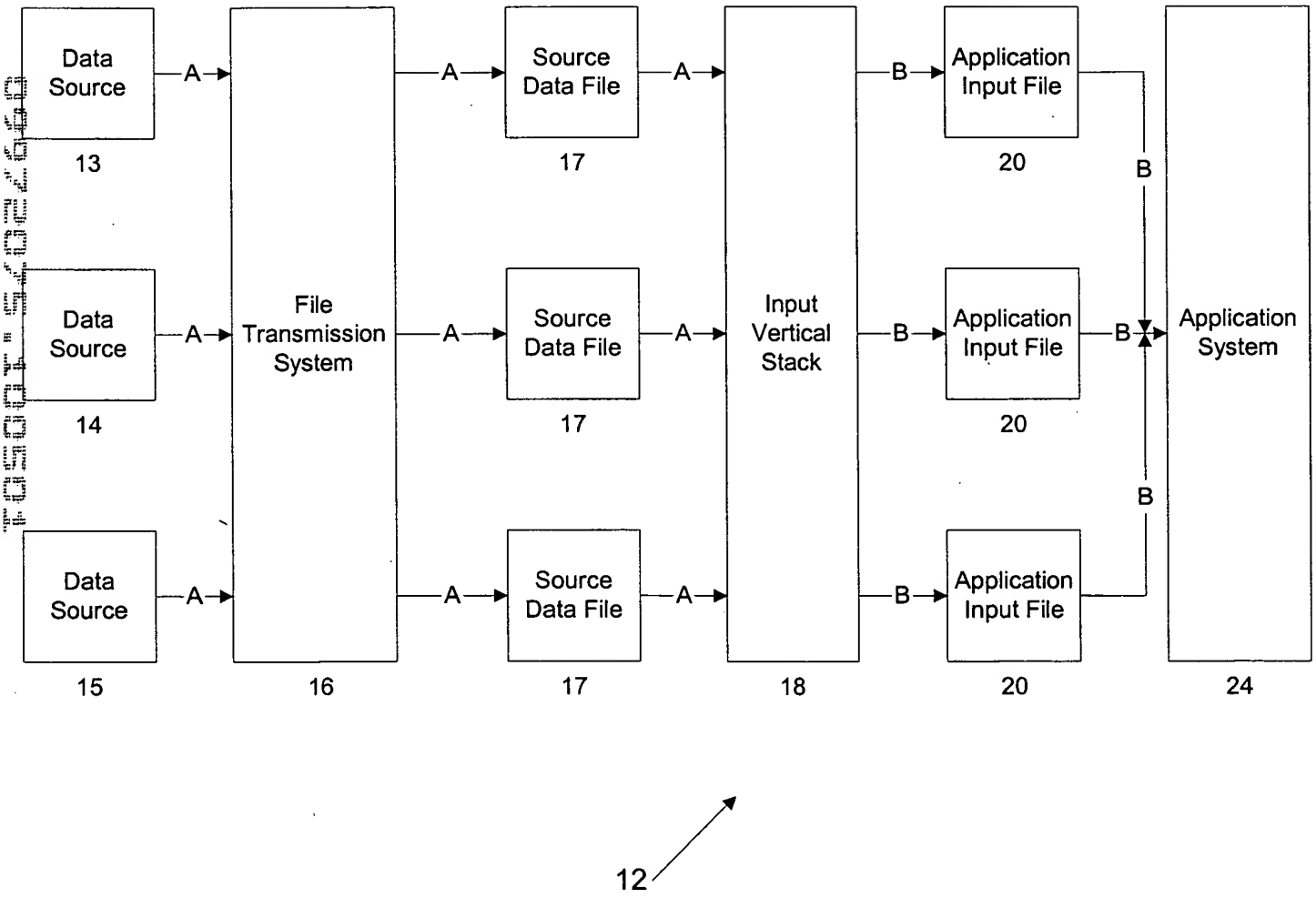

Data Source
13
Data Source
14
Data Source
15
A
File Transmission System
16
Source Data File
17
Input Vertical Stack
18
Application Input File
20
Application System
24
B
12

FIG. 2

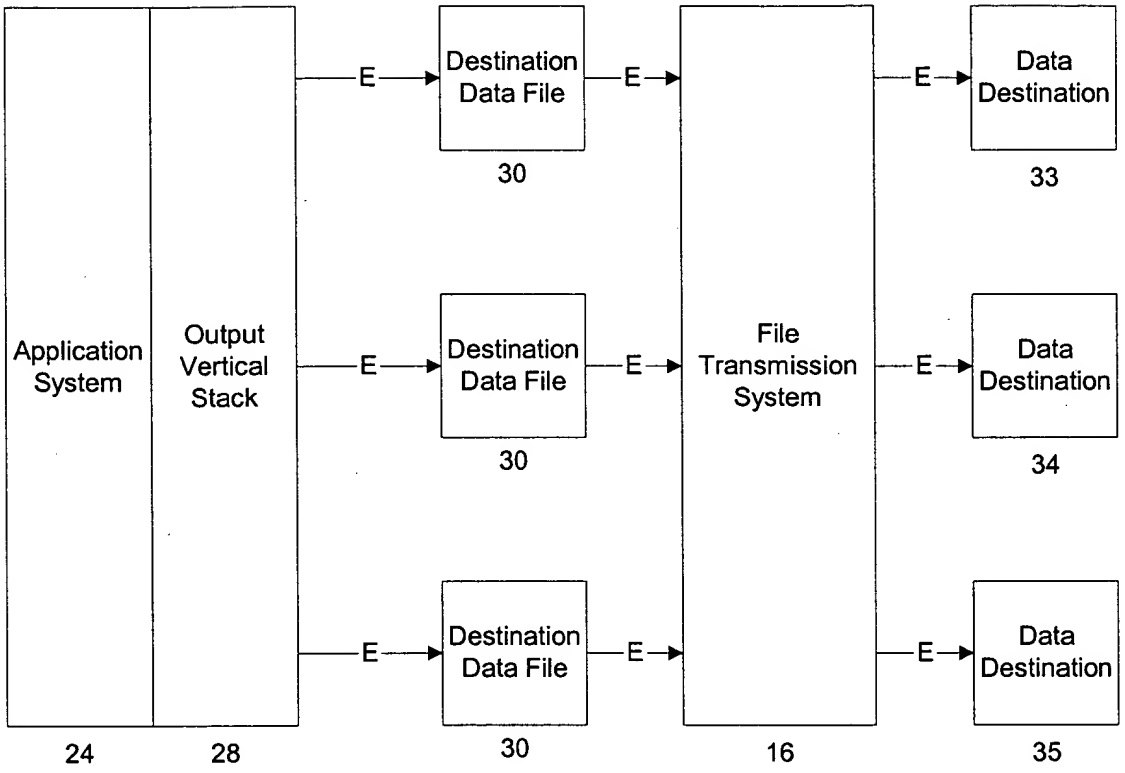

Application System
Output Vertical Stack
E
Destination Data File
E
File Transmission System
E
Data Destination
30
33
34
35
24
28
16
12

FIG. 3

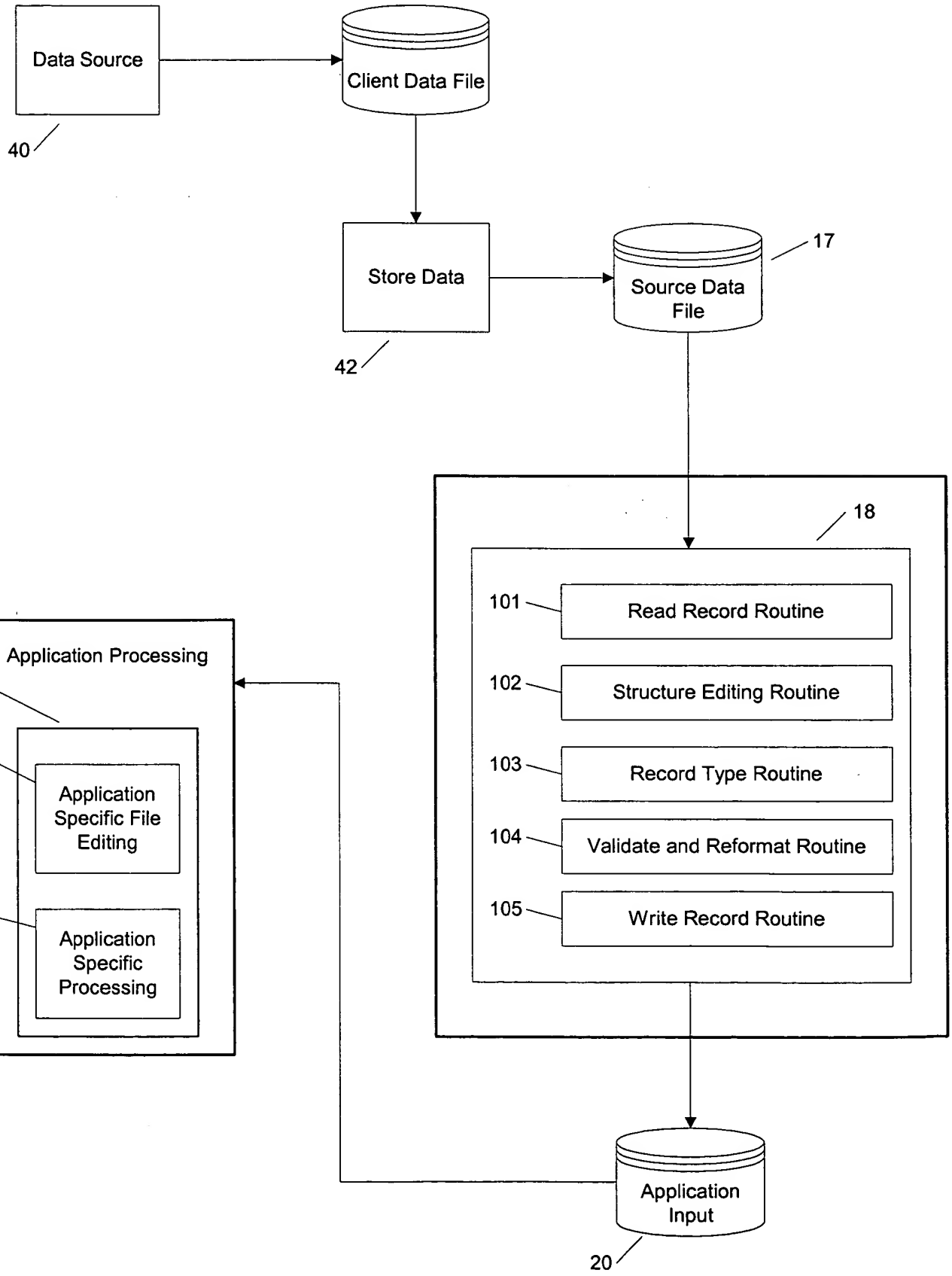

Data Source
Client Data File
40
Store Data
Source Data File
17
42
18
101
Read Record Routine
102
Structure Editing Routine
103
Record Type Routine
104
Validate and Reformat Routine
105
Write Record Routine
Application Processing
24
47
Application Specific File Editing
48
Application Specific Processing
Application Input
20

FIG. 4

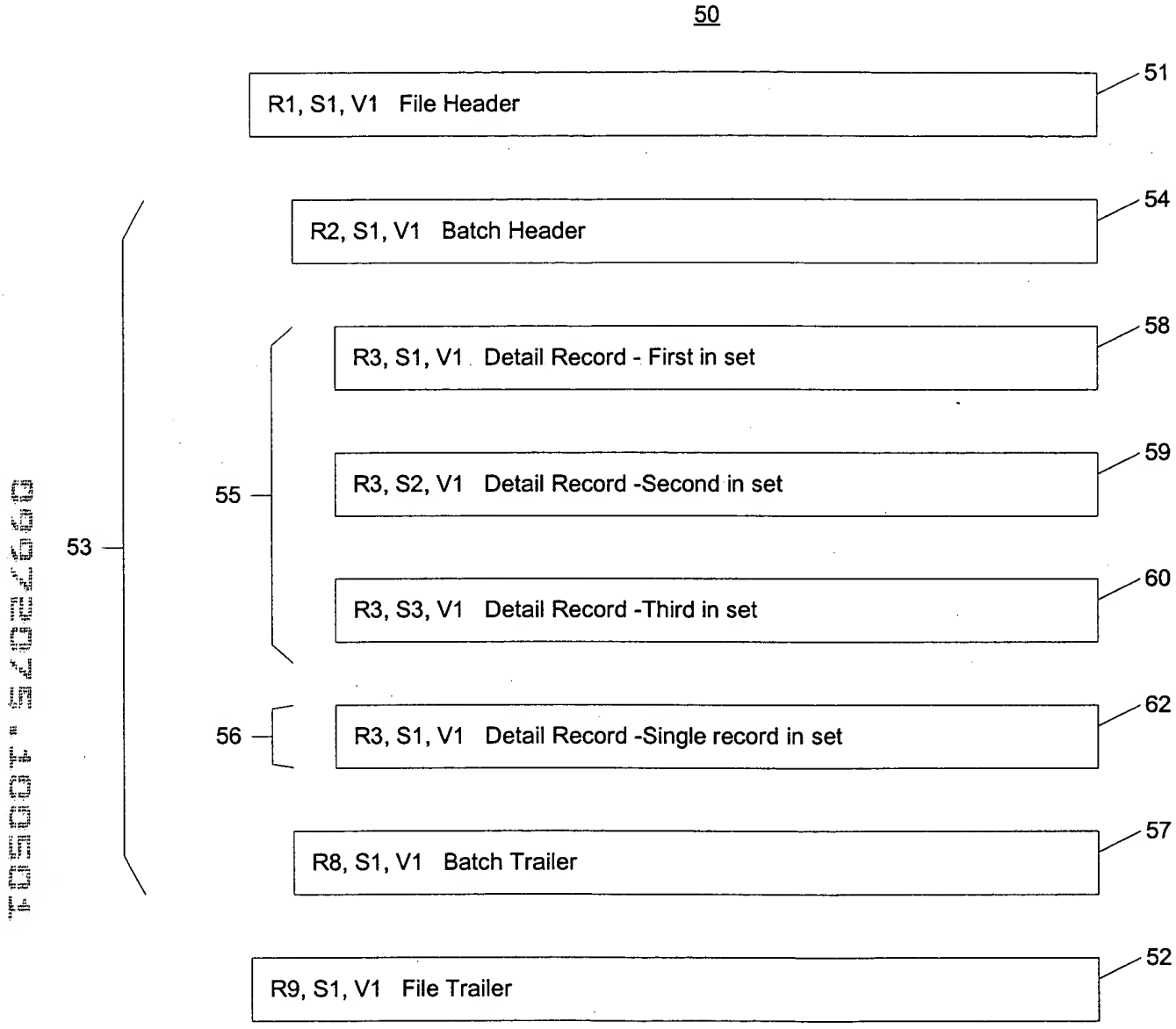

50
R1, S1, V1 File Header
51
R2, S1, V1 Batch Header
54
R3, S1, V1 Detail Record - First in set
58
R3, S2, V1 Detail Record -Second in set
59
R3, S3, V1 Detail Record -Third in set
60
R3, S1, V1 Detail Record -Single record in set
62
R8, S1, V1 Batch Trailer
57
R9, S1, V1 File Trailer
52
53
55
56

FIG. 5

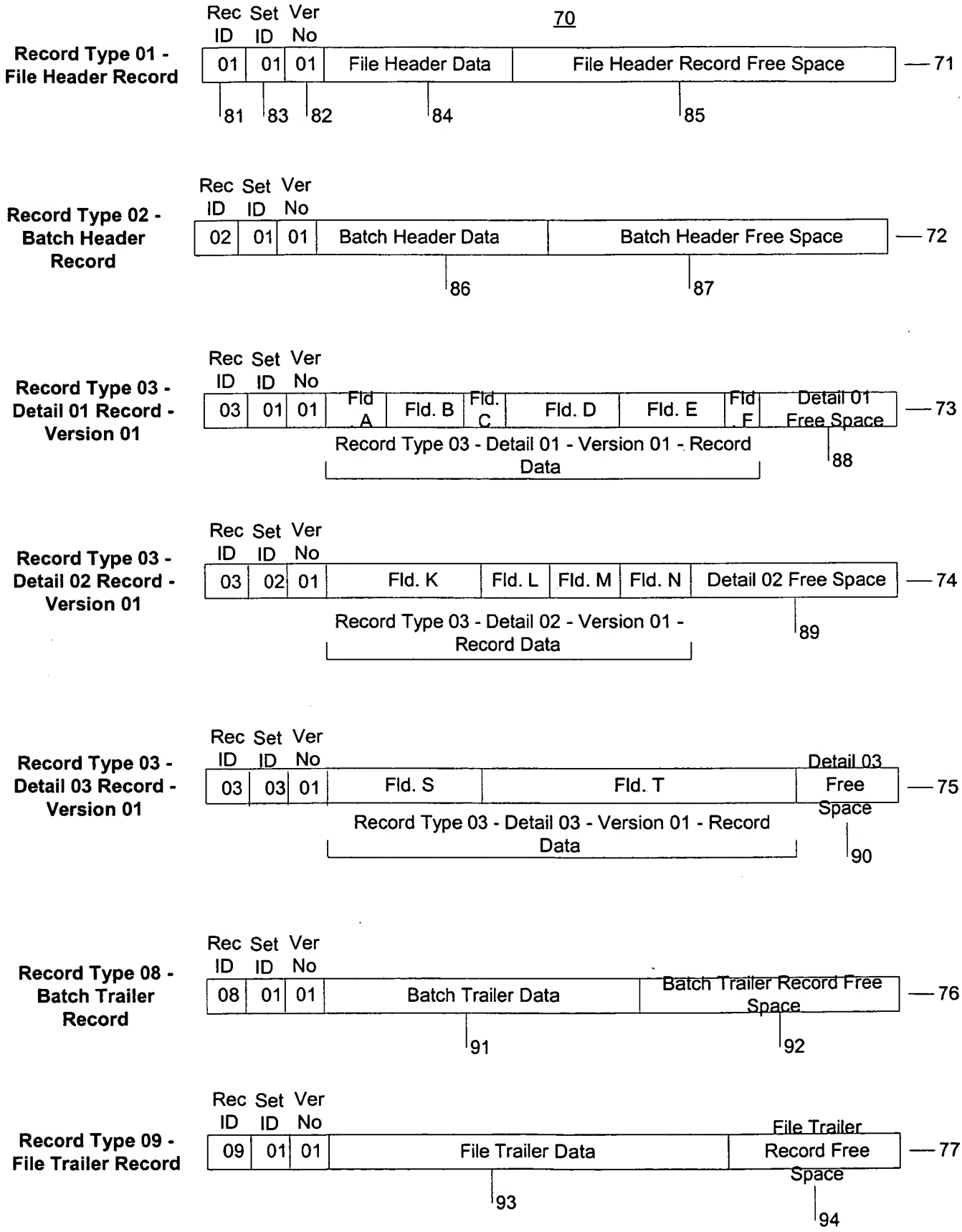
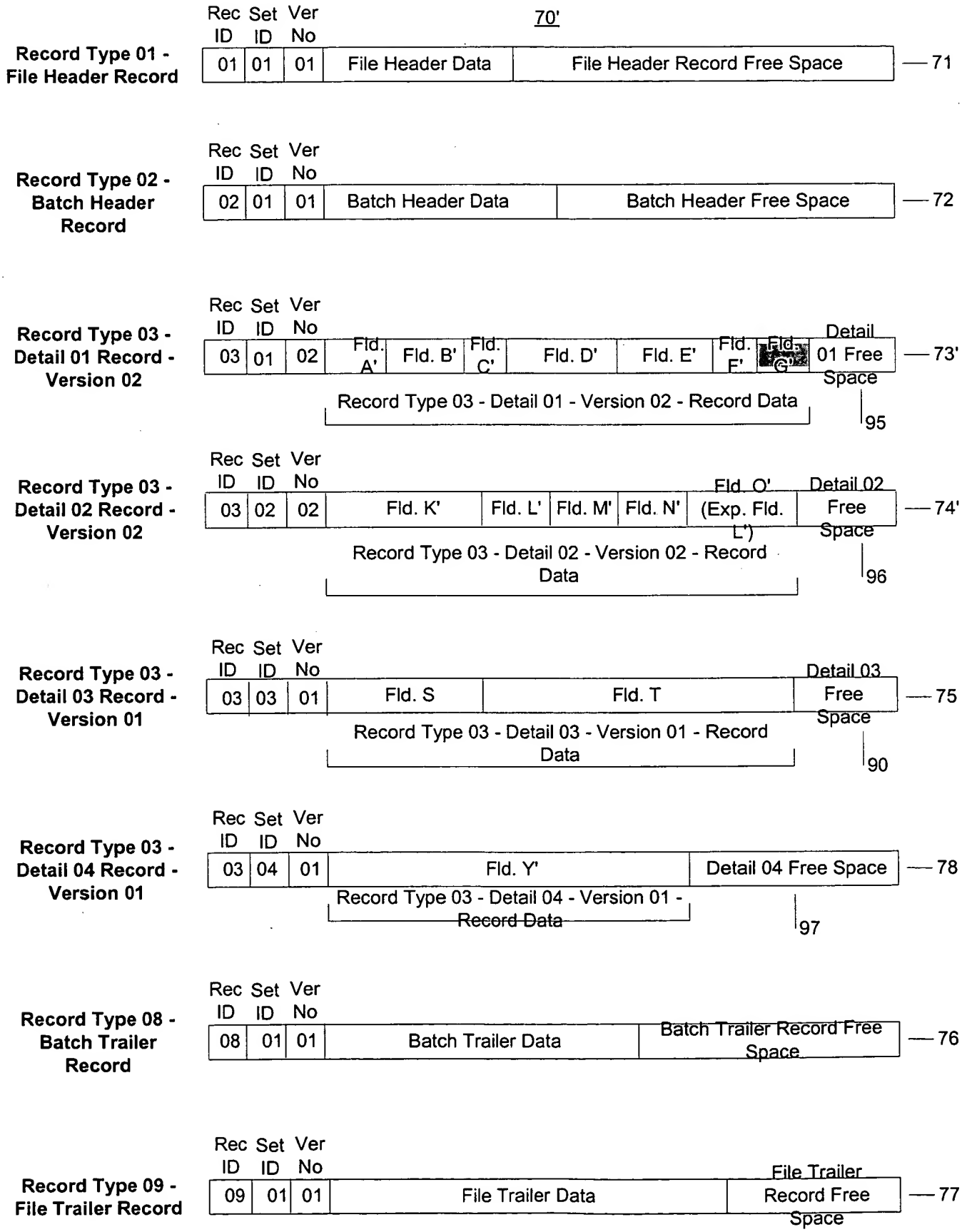

Record Type 01 - File Header Record
Rec ID
Set ID
Ver No
70
01
01
01
File Header Data
File Header Record Free Space
71
81
83
82
84
85
Record Type 02 - Batch Header Record
02
Batch Header Data
Batch Header Free Space
72
86
87
Record Type 03 - Detail 01 Record - Version 01
03
Fld A
Fld. B
Fld. C
Fld. D
Fld. E
Fld. F
Detail 01 Free Space
73
Record Type 03 - Detail 01 - Version 01 - Record Data
88
Record Type 03 - Detail 02 Record - Version 01
02
Fld. K
Fld. L
Fld. M
Fld. N
Detail 02 Free Space
74
Record Type 03 - Detail 02 - Version 01 - Record Data
89
Record Type 03 - Detail 03 Record - Version 01
03
Fld. S
Fld. T
Detail 03 Free Space
75
Record Type 03 - Detail 03 - Version 01 - Record Data
90
Record Type 08 - Batch Trailer Record
08
Batch Trailer Data
Batch Trailer Record Free Space
76
91
92
Record Type 09 - File Trailer Record
09
File Trailer Data
File Trailer Record Free Space
77
93
94

FIG. 6



Doc Id: US 6470345 B1

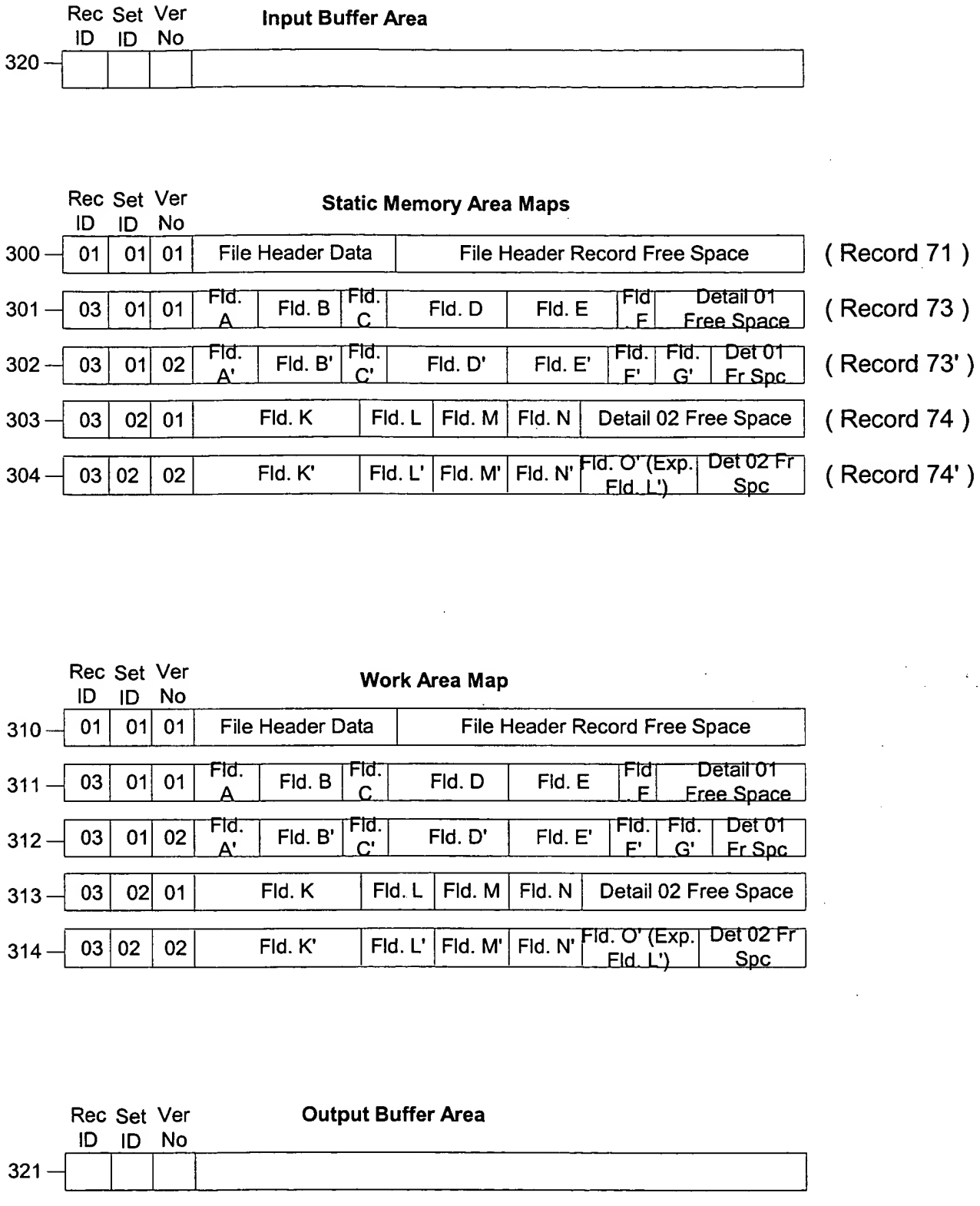

Rec ID
Set ID
Ver No
Input Buffer Area
320
Static Memory Area Maps
300
01 01 01 File Header Data File Header Record Free Space (Record 71)
301
03 01 01 Fld. A Fld. B Fld. C Fld. D Fld. E Fld F Detail 01 Free Space (Record 73)
302
03 01 02 Fld. A' Fld. B' Fld. C' Fld. D' Fld. E' Fld. F' Fld. G' Det 01 Fr Spc (Record 73')
303
03 02 01 Fld. K Fld. L Fld. M Fld. N Detail 02 Free Space (Record 74)
304
03 02 02 Fld. K' Fld. L' Fld. M' Fld. N' Fld. O' (Exp. Fld. L') Det 02 Fr Spc (Record 74')
Work Area Map
310
01 01 01 File Header Data File Header Record Free Space
311
03 01 01 Fld. A Fld. B Fld. C Fld. D Fld. E Fld F Detail 01 Free Space
312
03 01 02 Fld. A' Fld. B' Fld. C' Fld. D' Fld. E' Fld. F' Fld. G' Det 01 Fr Spc
313
03 02 01 Fld. K Fld. L Fld. M Fld. N Detail 02 Free Space
314
03 02 02 Fld. K' Fld. L' Fld. M' Fld. N' Fld. O' (Exp. Fld. L') Det 02 Fr Spc
Output Buffer Area
321
298

FIG. 7

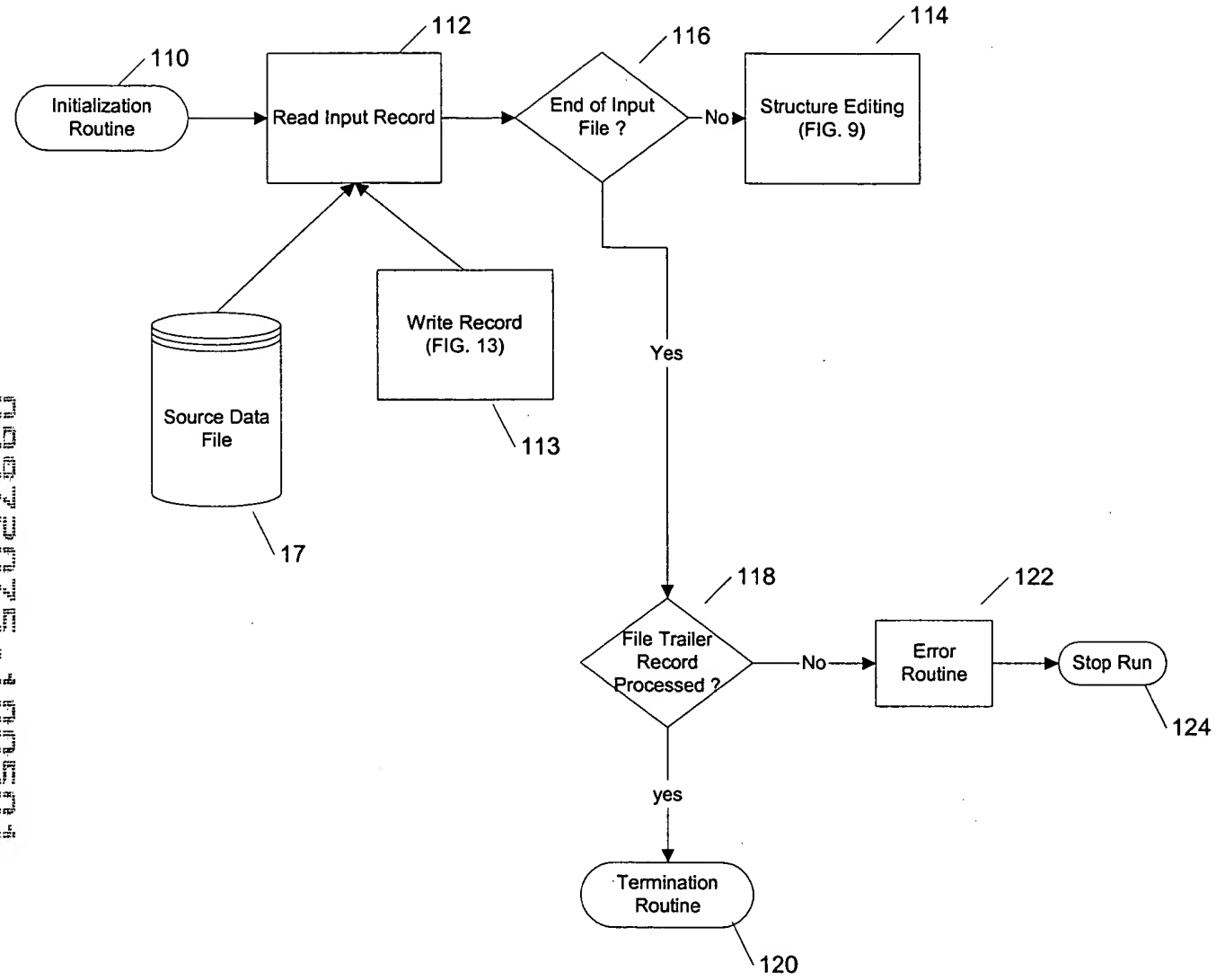

110
Initialization Routine
112
Read Input Record
116
End of Input File ?
No
114
Structure Editing (FIG. 9)
Yes
Write Record (FIG. 13)
113
Source Data File
17
118
File Trailer Record Processed ?
No
122
Error Routine
Stop Run
124
yes
Termination Routine
120

FIG. 8

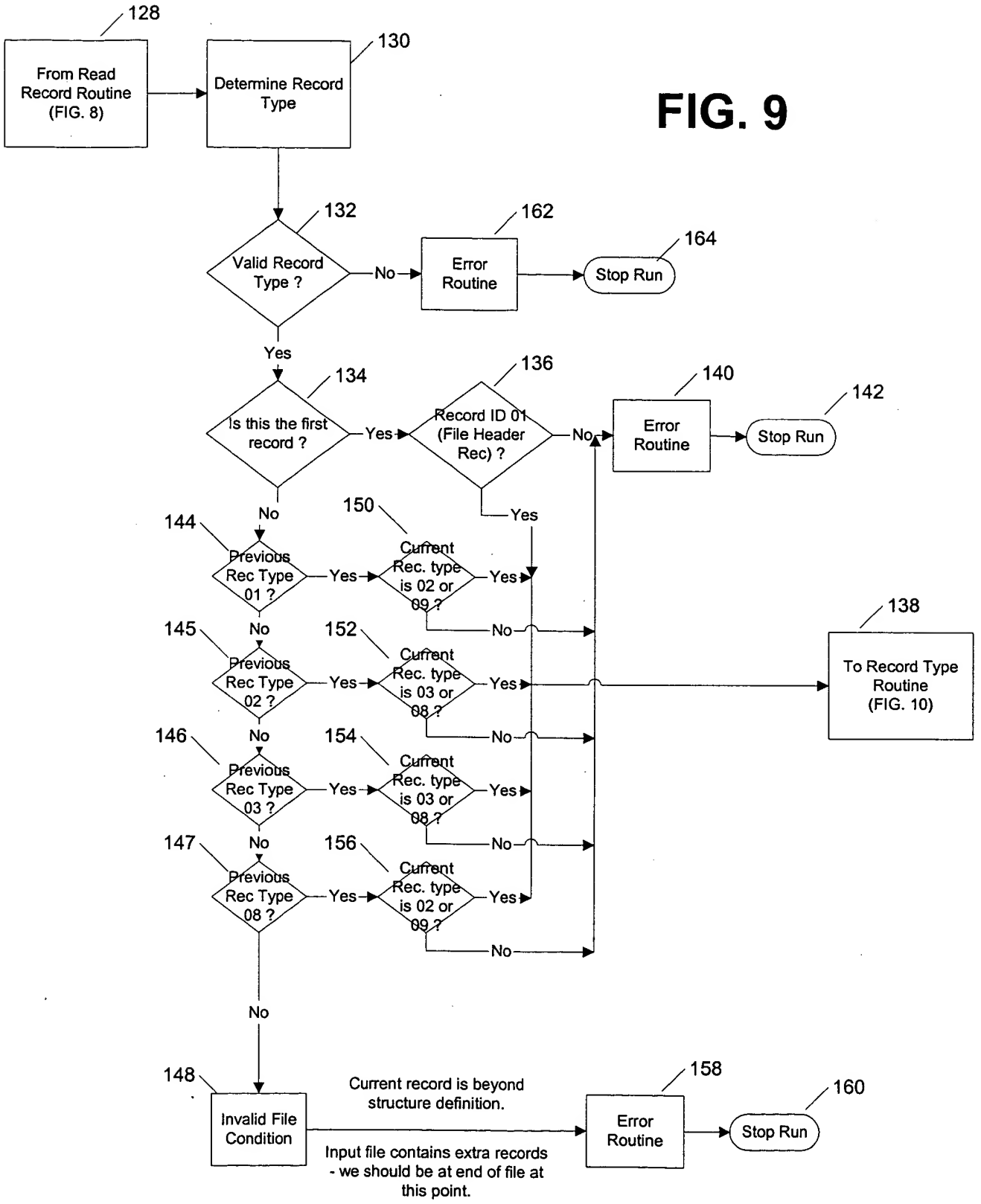

128
From Read Record Routine (FIG. 8)
130
Determine Record Type
132
Valid Record Type ?
No
162
Error Routine
164
Stop Run
Yes
134
Is this the first record ?
Yes
136
Record ID 01 (File Header Rec) ?
No
140
Error Routine
142
Stop Run
Yes
No
144
Previous Rec Type 01 ?
Yes
150
Current Rec. type is 02 or 09 ?
Yes
No
145
Previous Rec Type 02 ?
Yes
152
Current Rec. type is 03 or 08 ?
Yes
No
146
Previous Rec Type 03 ?
Yes
154
Current Rec. type is 03 or 08 ?
Yes
No
147
Previous Rec Type 08 ?
Yes
156
Current Rec. type is 02 or 09 ?
Yes
No
138
To Record Type Routine (FIG. 10)
No
148
Invalid File Condition
Current record is beyond structure definition.
Input file contains extra records - we should be at end of file at this point.
158
Error Routine
160
Stop Run

FIG. 9

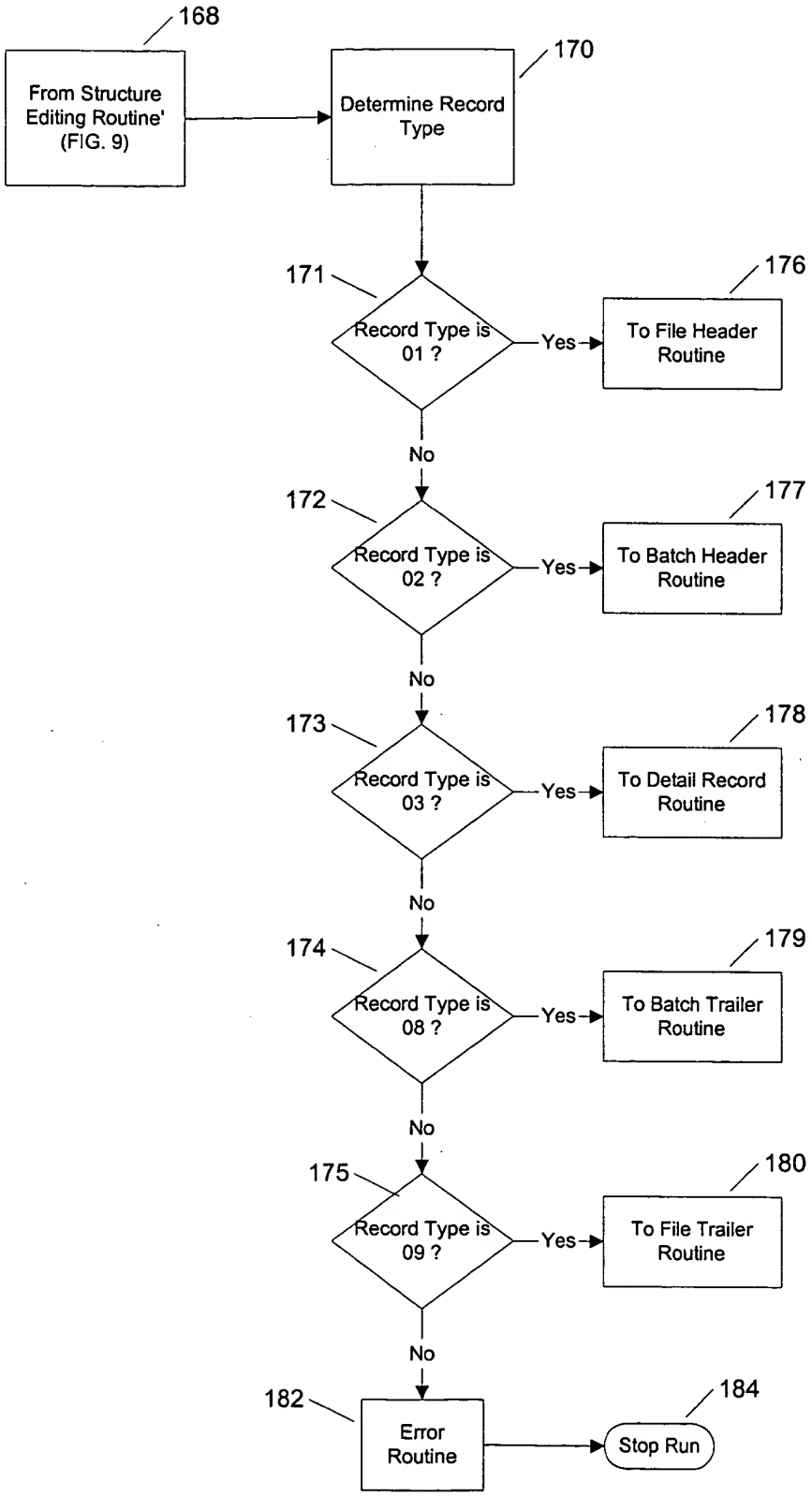


FIG. 10

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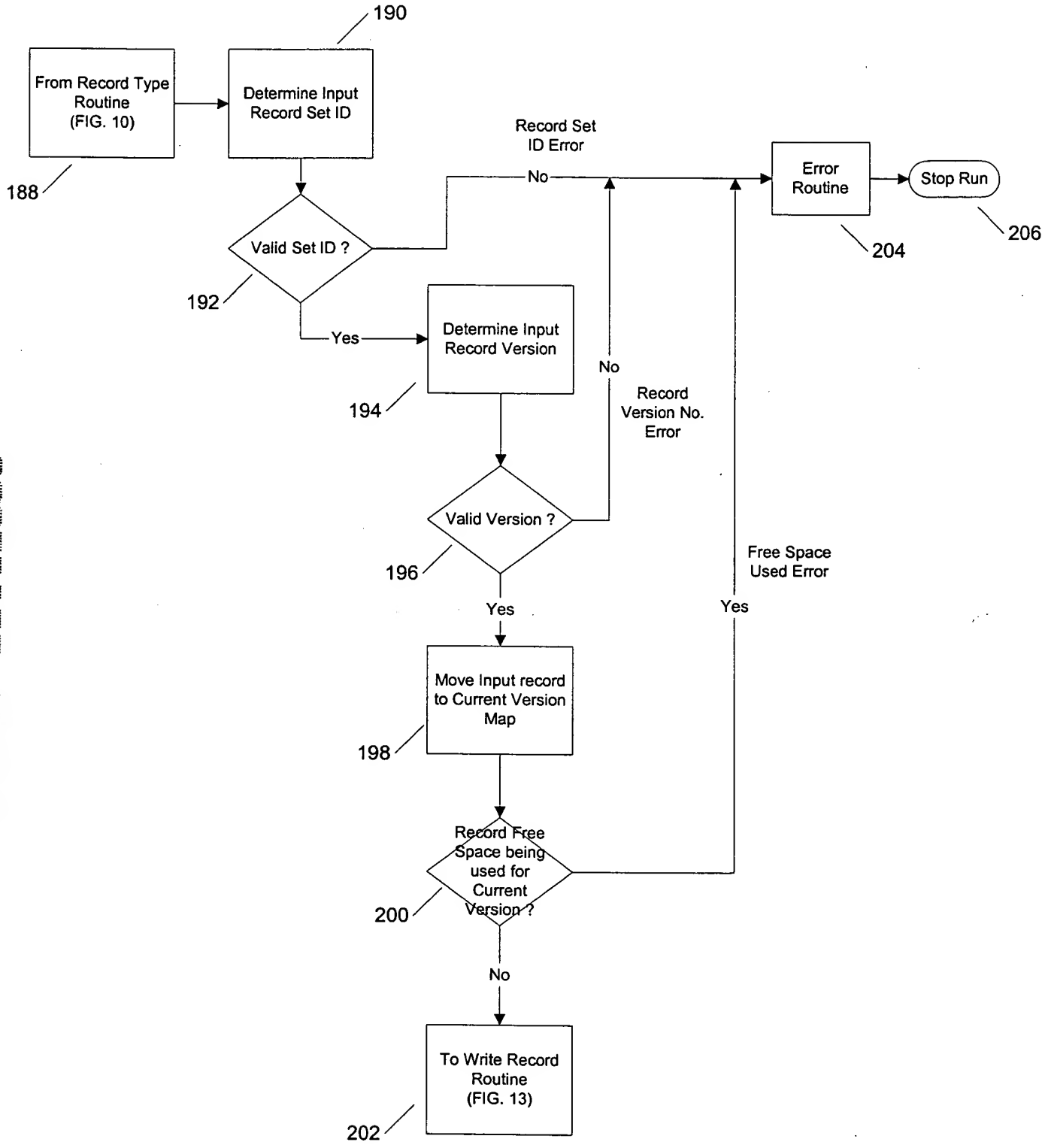

From Record Type Routine (FIG. 10)
188
Determine Input Record Set ID
190
Valid Set ID ?
192
Record Set ID Error
No
Error Routine
204
Stop Run
206
Yes
Determine Input Record Version
194
No
Record Version No. Error
Valid Version ?
196
Free Space Used Error
Yes
Yes
Move Input record to Current Version Map
198
Record Free Space being used for Current Version ?
200
No
To Write Record Routine (FIG. 13)
202

FIG. 11

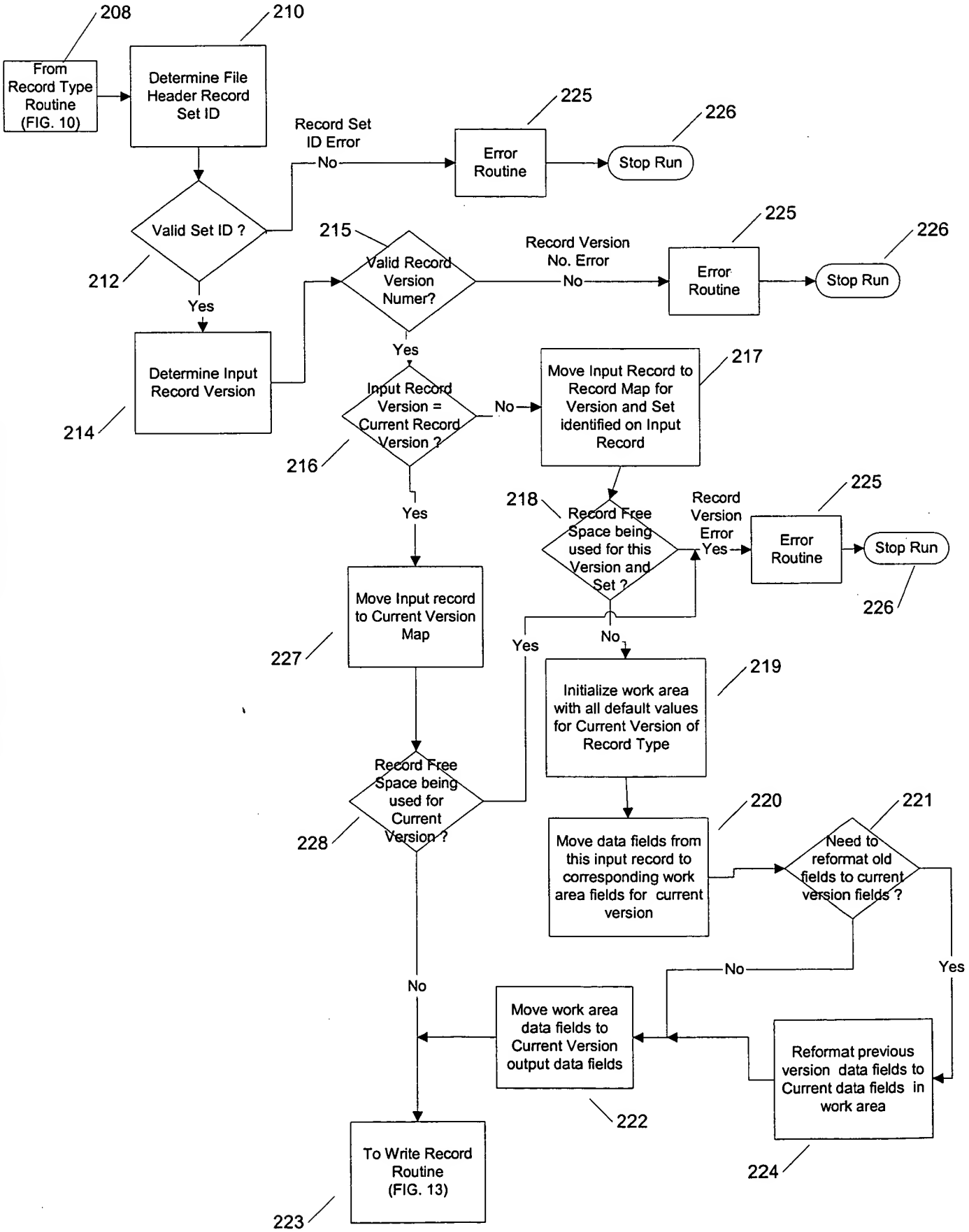

208
From Record Type Routine (FIG. 10)
210
Determine File Header Record Set ID
Record Set ID Error
No
225
Error Routine
226
Stop Run
Valid Set ID ?
212
Yes
215
Valid Record Version Numer?
Record Version No. Error
No
225
Error Routine
226
Stop Run
Yes
Determine Input Record Version
214
Input Record Version = Current Record Version ?
216
No
217
Move Input Record to Record Map for Version and Set identified on Input Record
Yes
218
Record Free Space being used for this Version and Set ?
Record Version Error
Yes
225
Error Routine
Stop Run
226
No
Yes
Move Input record to Current Version Map
227
219
Initialize work area with all default values for Current Version of Record Type
Record Free Space being used for Current Version ?
228
220
Move data fields from this input record to corresponding work area fields for current version
221
Need to reformat old fields to current version fields ?
No
Yes
No
Move work area data fields to Current Version output data fields
222
Reformat previous version data fields to Current data fields in work area
224
To Write Record Routine (FIG. 13)
223

FIG. 12

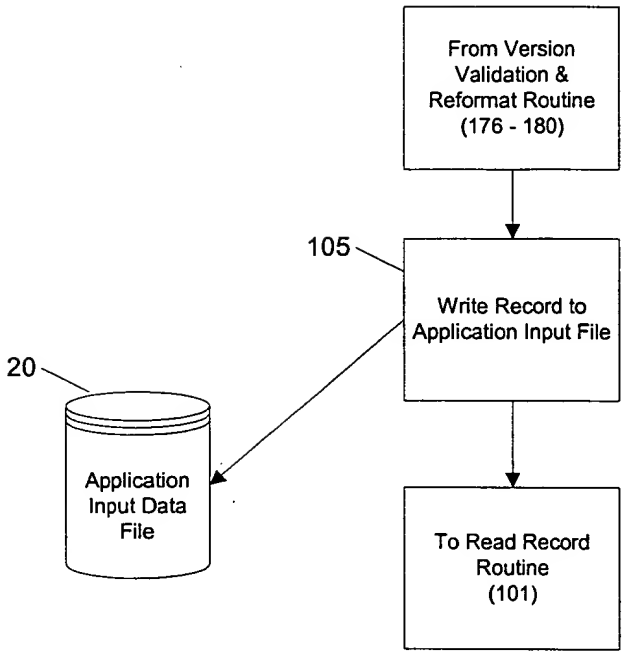

From Version Validation & Reformat Routine (176 - 180)
105
Write Record to Application Input File
20
Application Input Data File
To Read Record Routine (101)

FIG. 13

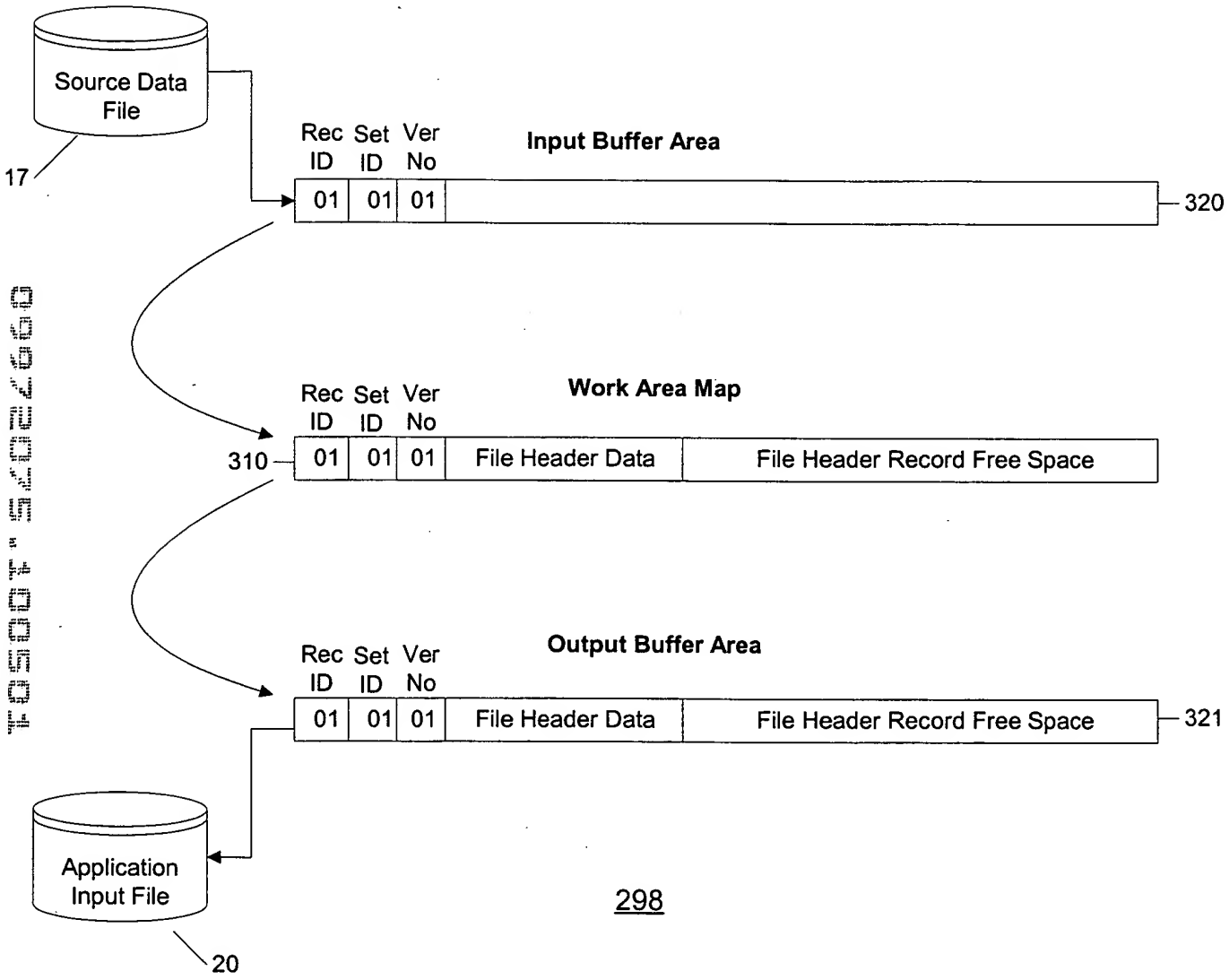

Source Data File
17
Rec ID
Set ID
Ver No
Input Buffer Area
01
01
01
320
Work Area Map
310
File Header Data
File Header Record Free Space
Output Buffer Area
321
Application Input File
20
298

FIG. 14

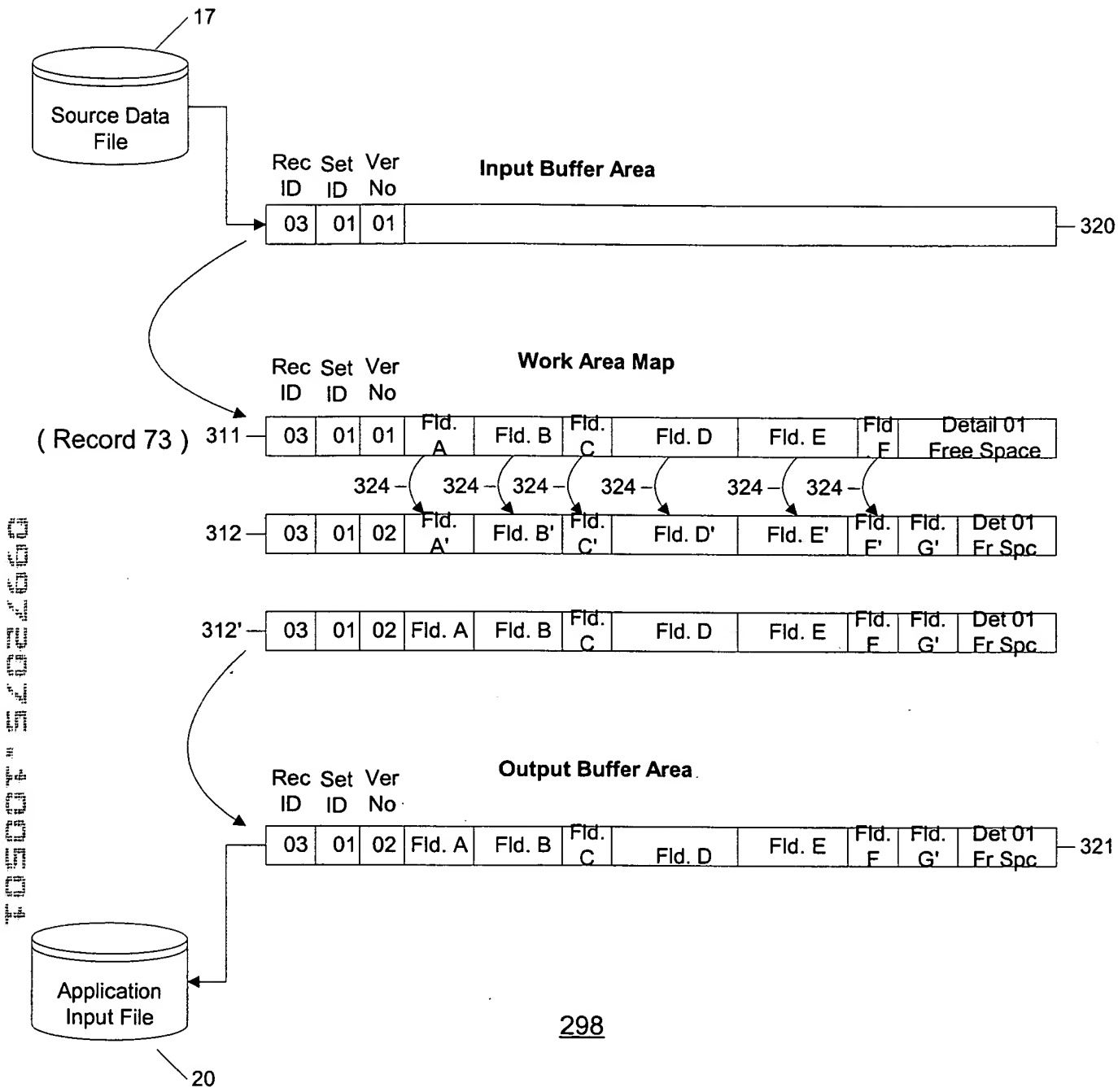

17
Source Data File
Rec ID
Set ID
Ver No
Input Buffer Area
03
01
01
320
Work Area Map
(Record 73)
311
Fld. A
Fld. B
Fld. C
Fld. D
Fld. E
Fld F
Detail 01 Free Space
324
312
Fld. A'
Fld. B'
Fld. C'
Fld. D'
Fld. E'
Fld. F'
Fld. G'
Det 01 Fr Spc
312'
Fld. A
Fld. B
Fld. C
Fld. D
Fld. E
Fld. F
Fld. G'
Det 01 Fr Spc
Output Buffer Area
321
Application Input File
20
298

FIG. 15

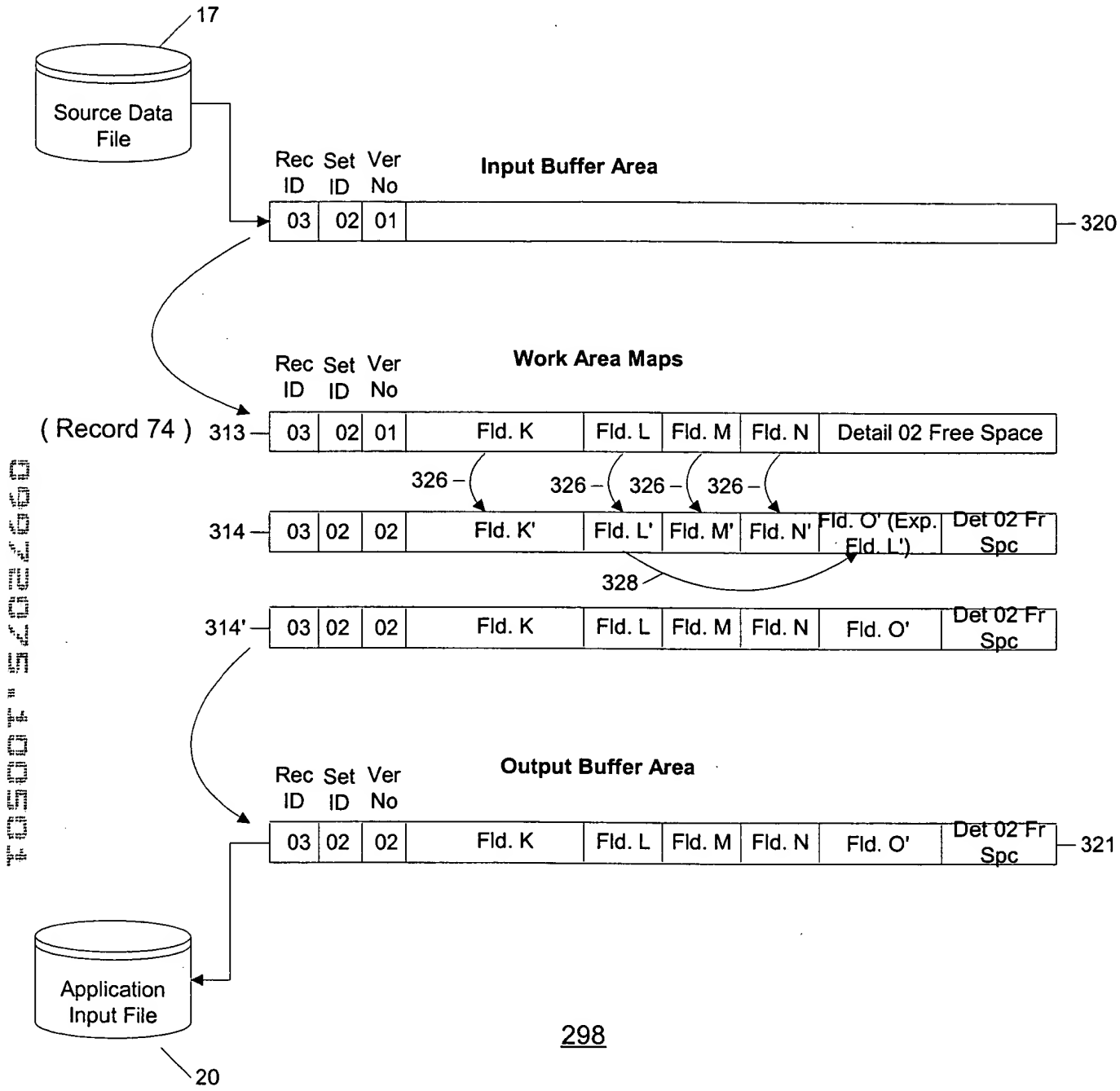

17
Source Data File
Rec ID
Set ID
Ver No
Input Buffer Area
03
02
01
320
Work Area Maps
(Record 74)
313
Fld. K
Fld. L
Fld. M
Fld. N
Detail 02 Free Space
326
314
Fld. K'
Fld. L'
Fld. M'
Fld. N'
Fld. O' (Exp. Fld. L')
Det 02 Fr Spc
328
314'
Fld. O'
Output Buffer Area
321
Application Input File
20
298

FIG. 16

FIG. 17

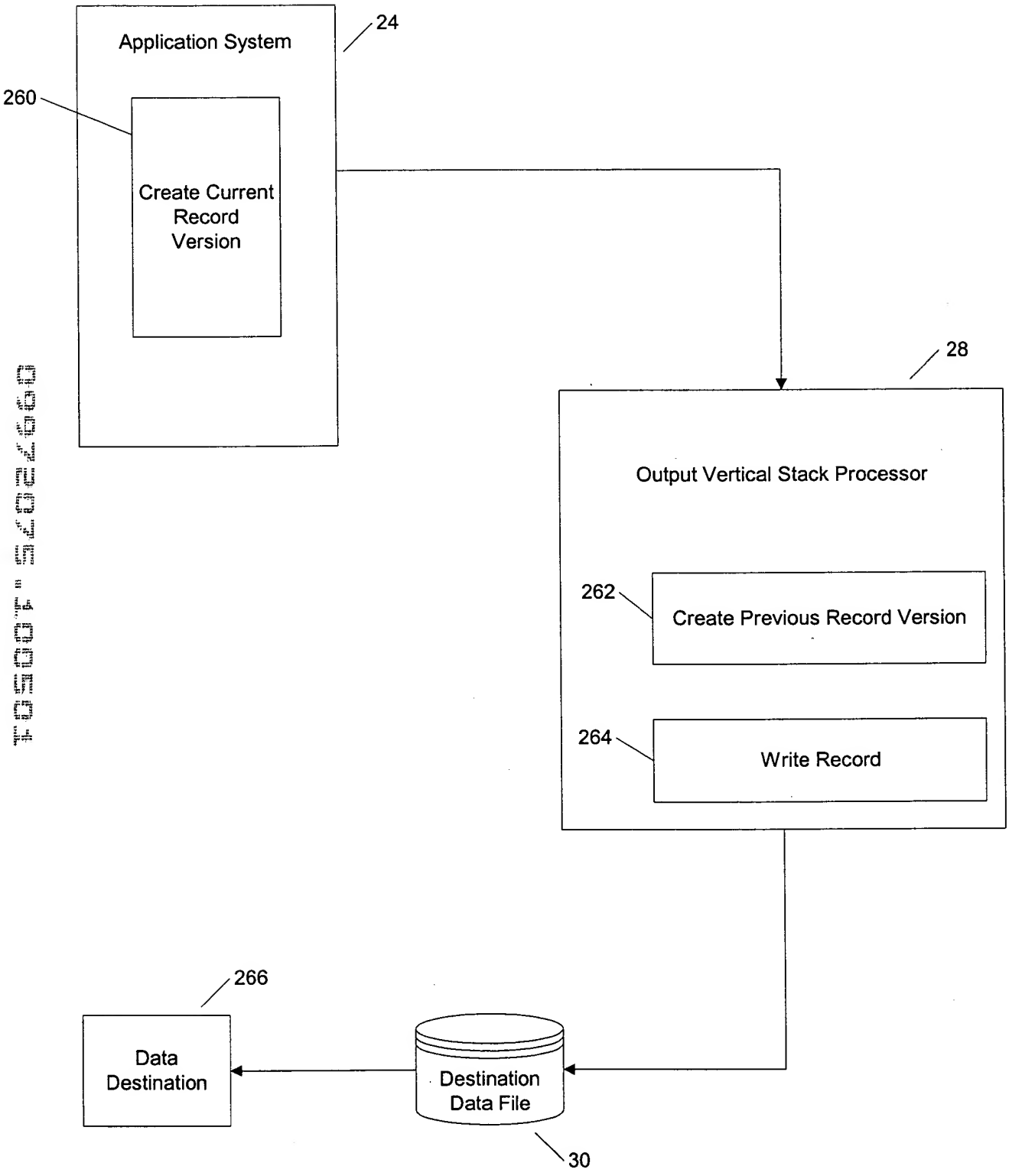
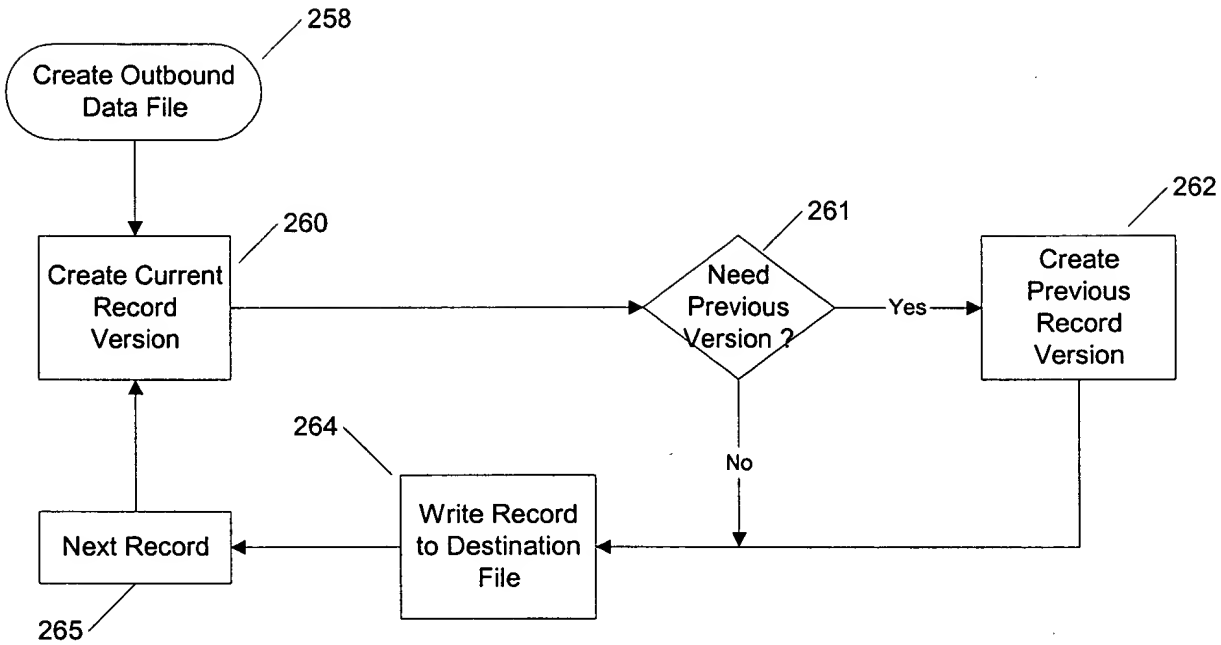

Application System
24
260
Create Current Record Version
28
Output Vertical Stack Processor
262
Create Previous Record Version
264
Write Record
266
Data Destination
Destination Data File
30

FIG. 18


258
Create Outbound Data File
260
Create Current Record Version
261
Need Previous Version ?
Yes
262
Create Previous Record Version
No
264
Write Record to Destination File
Next Record
265